

CLAIMS

1. Ready-to-use composition for the oxidation dyeing of keratin fibres, and in particular human keratin fibres such as the hair, characterized in that it comprises, in a medium which is suitable for dyeing:

- para-phenylenediamine and/or at least one of the addition salts thereof with an acid, as first oxidation base,
- 10 - at least one second oxidation base chosen from para-aminophenols,
 - 2-methyl-5-N-(β -hydroxyethyl)aminophenol and/or at least one of the addition salts thereof with an acid, as coupler,
- 15 - at least one enzyme of 2-electron oxidoreductase type, and
- at least one donor for the said enzyme.

2. Composition according to Claim 1, characterized in that the 2-electron oxidoreductase is chosen from pyranose oxidases, glucose oxidases, glycerol oxidases, lactate oxidases, pyruvate oxidases and uricases.

3. Composition according to either of Claims 1 and 2, characterized in that the 2-electron oxidoreductase is chosen from uricases of animal, 25 microbiological or biotechnological origin.

4. Composition according to any one of the preceding claims, characterized in that the 2-electron

oxidoreductase(s) represent(s) from 0.01 to 20% by weight relative to the total weight of the ready-to-use dye composition.

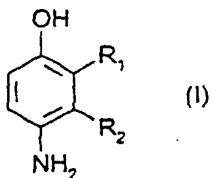
5. Composition according to Claim 4,
5 characterized in that the 2-electron oxidoreductase(s) represent(s) from 0.1 to 5% by weight relative to the total weight of the ready-to-use dye composition.

6. Composition according to Claim 3,
characterized in that the donor (or substrate) for the
10 said 2-electron oxidoreductase is chosen from uric acid and its salts.

7. Composition according to any one of the preceding claims, characterized in that the donor(s) represent(s) from 0.01 to 20% by weight relative to the
15 total weight of the ready-to-use dye composition.

8. Composition according to Claim 7,
characterized in that the donor(s) represent(s) from 0.1 to 5% by weight relative to the total weight of the ready-to-use dye composition.

20 9. Composition according to any one of the preceding claims, characterized in that the para-aminophenols are chosen from the compounds corresponding to the formula (I) below, and the addition salts thereof with an acid:



in which:

- R₁ represents a hydrogen or halogen atom or a C₁-C₄ alkyl, C₁-C₄ monohydroxyalkyl, (C₁-C₄)alkoxy(C₁-C₄)alkyl, C₁-C₄ aminoalkyl or hydroxy(C₁-C₄)alkylamino(C₁-C₄)alkyl radical,

- R₂ represents a hydrogen or halogen atom or a C₁-C₄ alkyl, C₁-C₄ monohydroxyalkyl, C₂-C₄ polyhydroxyalkyl, C₁-C₄ aminoalkyl, C₁-C₄ cyanoalkyl or (C₁-C₄)alkoxy-(C₁-C₄)alkyl radical,

it being understood that at least one of the radicals R₁ or R₂ represents a hydrogen atom.

10. Composition according to Claim 9, characterized in that the para-aminophenols of formula (I) are chosen from para-aminophenol, 4-amino-3-methylphenol, 4-amino-3-fluorophenol, 4-amino-3-hydroxymethylphenol, 4-amino-2-methylphenol, 4-amino-2-hydroxymethylphenol, 4-amino-2-methoxymethylphenol, 4-amino-2-aminomethylphenol, 4-amino-2-(β-hydroxyethylaminomethyl)phenol and 4-amino-2-fluorophenol, and the addition salts thereof with an acid.

11. Composition according to any one of the preceding claims, characterized in that the para-phenylenediamine and/or the addition salt(s) thereof with an acid represent from 0.0005 to 12% by weight relative to the total weight of the ready-to-use dye composition.

12. Composition according to Claim 11,

characterized in that the para-phenylenediamine and/or the addition salt(s) thereof with an acid represent from 0.005 to 6% by weight relative to the total weight of the ready-to-use dye composition.

5 13. Composition according to any one of the preceding claims, characterized in that the para-aminophenol(s) represent(s) from 0.0005 to 12% by weight relative to the total weight of the ready-to-use dye composition.

10 14. Composition according to Claim 13, characterized in that the para-aminophenol(s) represent(s) from 0.005 to 6% by weight relative to the total weight of the ready-to-use dye composition.

15 15. Composition according to any one of the preceding claims, characterized in that the 2-methyl-5-N-(β -hydroxyethyl)aminophenol and/or the addition salt(s) thereof with an acid represent(s) from 0.0001 to 5% by weight relative to the total weight of the ready-to-use dye composition.

20 16. Composition according to Claim 15, characterized in that the 2-methyl-5-N-(β -hydroxyethyl)aminophenol and/or the addition salt(s) thereof with an acid represent(s) from 0.005 to 3% by weight relative to the total weight of the ready-to-use
25 dye composition.

17. Composition according to any one of the preceding claims, characterized in that it contains one or more couplers other than 2-methyl-5-N-(β -

hydroxyethyl)aminophenol and the addition salts thereof with an acid and/or one or more direct dyes.

18. Composition according to any one of the preceding claims, characterized in that the addition
5 salts with an acid are chosen from the hydrochlorides, hydrobromides, sulphates, tartrates, lactates and acetates.

19. Composition according to any one of the preceding claims, characterized in that the medium
10 which is suitable for dyeing consists of water or a mixture of water and at least one organic solvent.

20. Composition according to any one of the preceding claims, characterized in that it has a pH of between 5 and 11.

15 21. Composition according to any one of the preceding claims, characterized in that it contains at least one peroxidase.

22. Process for dyeing keratin fibres, and in particular human keratin fibres such as the hair,
20 characterized in that at least one ready-to-use dye composition as defined in any one of the preceding claims is applied to the said fibres, for a period which is sufficient to develop the desired coloration.

23. Process according to Claim 22,
25 characterized in that it includes a preliminary step which consists in separately storing, on the one hand, a composition (A) comprising, in a medium which is suitable for dyeing, para-phenylenediamine and/or at

least one of the addition salts thereof with an acid as first oxidation base, at least one second oxidation base chosen from para-aminophenols, 2-methyl-5-N-(β -hydroxyethyl)aminophenol and/or at least one of the addition salts thereof with an acid as coupler, and, on the other hand, a composition (B) comprising, in a medium which is suitable for dyeing, at least one enzyme of 2-electron oxidoreductase type in the presence of at least one donor for the said enzyme, and then in mixing them together at the time of use, after which this mixture is applied to the keratin fibres.

24. Multi-compartment dyeing device or "kit", characterized in that it includes a first compartment comprising composition (A) as defined in Claim 23 and a second compartment comprising composition (B) as defined in Claim 23.